MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2017/2018

MMA 1033 – VISUAL PROGRAMMING
(All Sections / Groups)

16 OCTOBER 2017
9.00 am – 11.00 am
(2 Hours)


INSTRUCTIONS TO STUDENTS

1. This question paper consists of 13 pages (including the front page).

2. Answer **ALL** questions.

3. Print all your answers in the answer box associated with each question.

4. Write your **SEAT NUMBER** on the question paper top right hand corner on this page.

QUESTION 1

(a) Based on the processing codes below, draw a shape as you will expect on the *Display Windows*.

```
size(400,400);
beginShape();
    vertex(150,100);
    vertex(150,300);
    vertex(50,300);
    vertex(200,350);
    vertex(350,300);
    vertex(250,300);
    vertex(250,100);
    vertex(350,100);
    vertex(200,50);
    vertex(50,100);
endShape(CLOSE);
```
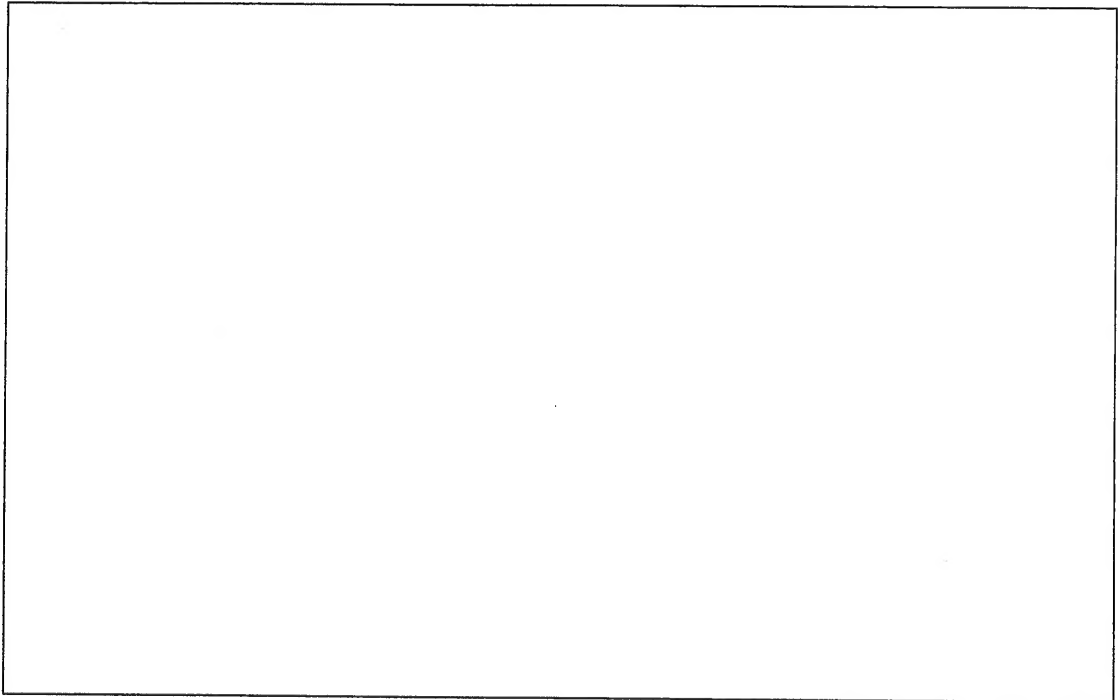
[3 marks]
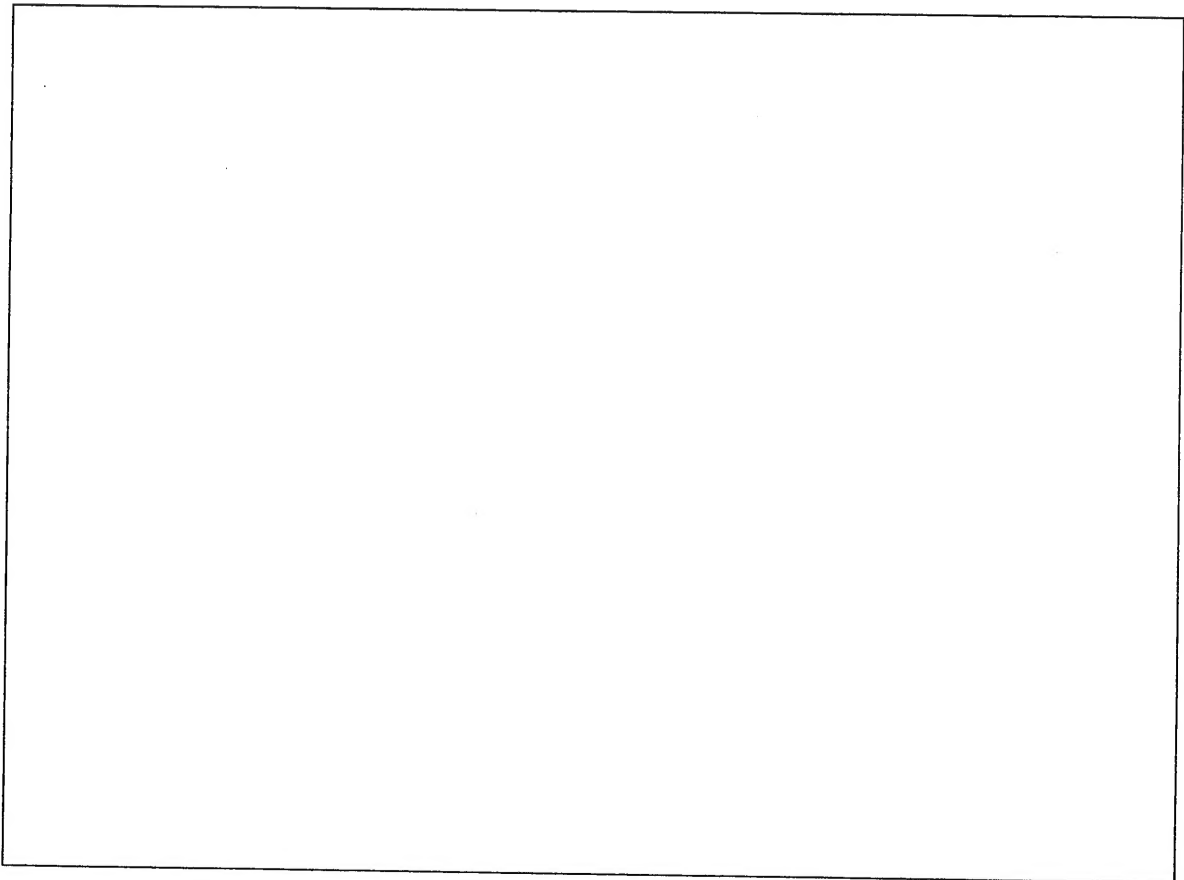
Continued...

(b) Explain this code and each values in the function size(), point(x,y), fill(), stroke(), and rect().

    i)   size(100,200);

    ii)   point(20,120);

    iii)   fill (100, 200, 180, 0);

    iv)   stroke(100);
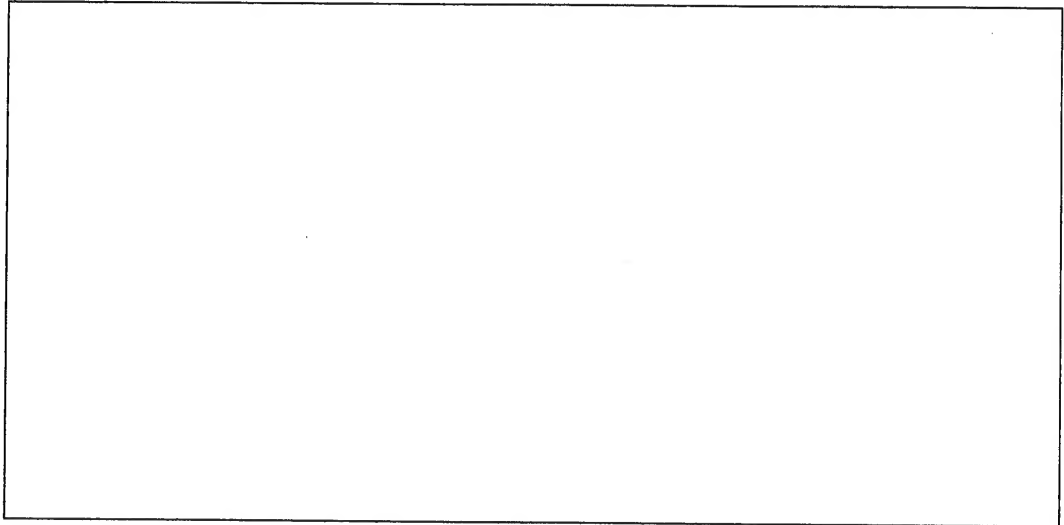
    v)   background(108);

[5 marks]

Continued...

c) The following are the functions in *Processing* to generate the rectangle and ellipse. Draw the shapes as you will see on the *Display Windows*.

i)   rect(50,50,90,10);

ii)   ellipse(10,60,30,30,50,100);

[3 marks]

QUESTION 2

(a) What are the values of x, y and z from this declaration of variables and initialization and partially run the program?
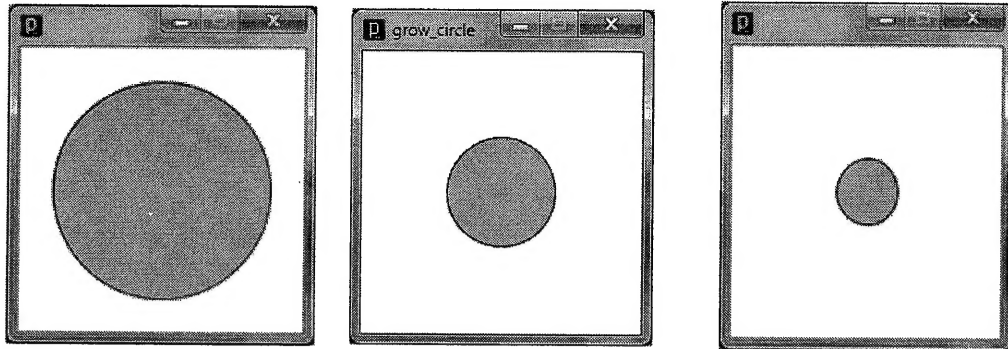
```
int x=0;
int y;
y = x + 10;
int z = x+y*2;
```

[3 marks]

x=

y=

z=

Continued...

(b) Complete your codes using Processing to make the circle decreasing in size.

[3 marks]

```
int circleSize=0;

int circleX=100;

int circleY=100;


void setup() {

  size(200,200);

}


void draw()  {

background(255);

  stroke(0);

  fill(175);

ellipse(_____,_____,_____,_____);

_____;

}
```
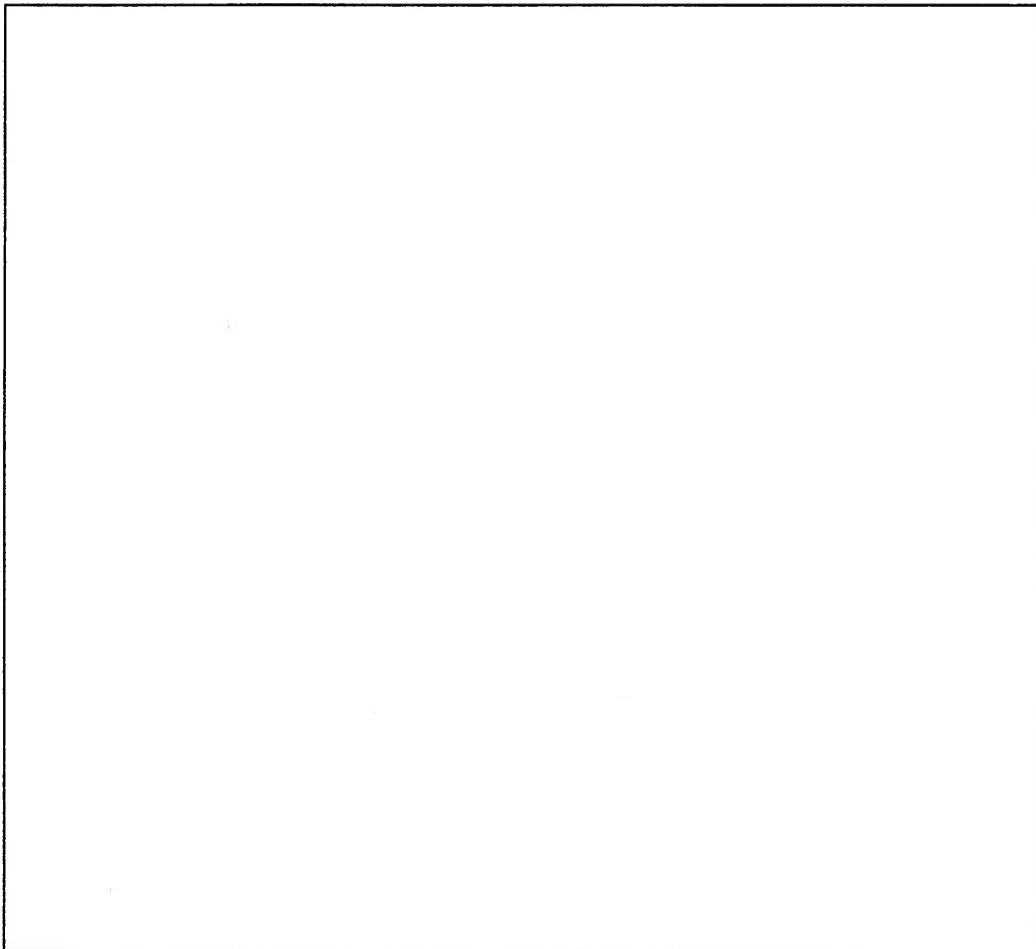
Continued...

(c) Based on the processing codes below, draw the shape as you will expect on the *Display Windows*.
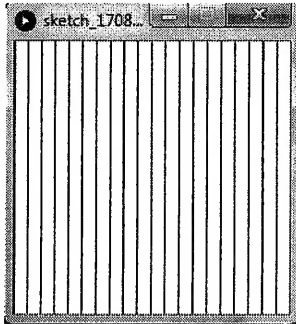
[4 marks]

```
size(200,400);
int x=30;
int y=50;
int w=30;

rect(x,y,w,200);
y=y+100;
rect(x+w,y,w,200);
y=y-120;
rect(x+w*2,y,w,200);
y=y+100;
rect(x+w*3,y,w,200);
```

Continued...

QUESTION 3

(a) Fill in the blanks in the code to create the following screenshots.

[3 marks]

```
        size(200,200);

        background(255);



        int x=0;

        while(_____) {

         stroke(0);

         line(_____,_____,_____,_____);

         x=_____;

}
```

(b) Write the output of this function.

```
int grade = 100;
while (grade>95) {
println ("A+");
grade -=1;
}
```

[2 marks]

Continued...

(c) Declare and initialize the elements of an array all at once. Write the two lines of declaration and initialization of the array using processing based on the following description.

"...Declare and initialize a list of array with 3 integer elements all together. Name the array arrayStudentId. Declare and initialize another array with 3 floating points elements all together. Name the array arrayOfStudentScore"

[3 marks]

(d) Rewrite the below processing code using constraint function.

```
if (r>255) {
r=255;
} else if (r<0) {
 r=0;
}
```
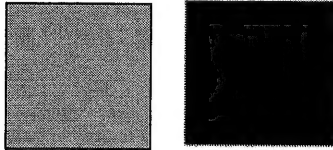
[2 marks]

Continued...

QUESTION 4

(a) Complete the following codes to implement a simple rollover. The rectangle will be changed to black color when the mouse is over the rectangle.

(when mouse is
Out the rectangle,
It change color
To grey (initial color)

(when mouse is
In the rectangle,
It change color
To black)

[4 marks]

```
int x = 50;
int y = 50;
int w = 100;
int h = 100;
void setup() {
  size(200,200);
}
void draw() {
  background(255);
  stroke(0);
  if (_____ && _____ && _____ && _____) {
    fill(0);
  } else {
    fill(175);
  }
  rect(x,y,w,h);
}
```

Continued...

(b) Are the following Boolean expression **true** or **false**? Assume variables int a=2 and b=3;

[2 marks]

i)   !(a>5)= _____

ii)   (a==2 && a==3)=_____

iii)   (b==2 || b==3)=_____

iv)   (a>-1 && b< 8)= _____

(c) Examine the following code samples and write down your answer what will appear in the message window.   [4 marks]

i)

```
int x = 50;
if(x>50) {
  println("x bigger than 50");
} else if (x>25) {
  println("x bigger than 25");
} else {
  println("x less than 25");
}
```

OUTPUT:_____

ii)

```
int x = 50;
if(x>50) {
  println("x bigger than 50");
} else if (x>25) {
  println("x bigger than 25");
} else {
  println("x less than 25");
}
```

OUTPUT:_____

Continued...

iii)

```
float grade=70;
if (grade > 90) {
  println("Assign letter grade A.");
} else if (grade > 80) {
  println("Assign letter grade B.");
} else if (grade > 70) {
  println("Assign letter grade C.");
} else if (grade > 60) {
  println("Assign letter grade D.");
} else {
  println("Assign letter grade F.");
}
```

OUTPUT:_____

iv)

```
float grade=59;
if (grade > 90) {
  println("Assign letter grade A.");
} else if (grade > 80) {
  println("Assign letter grade B.");
} else if (grade > 70) {
  println("Assign letter grade C.");
} else if (grade > 60) {
  println("Assign letter grade D.");
} else {
  println("Assign letter grade F.");
}
```

OUTPUT:_____

QUESTION 5

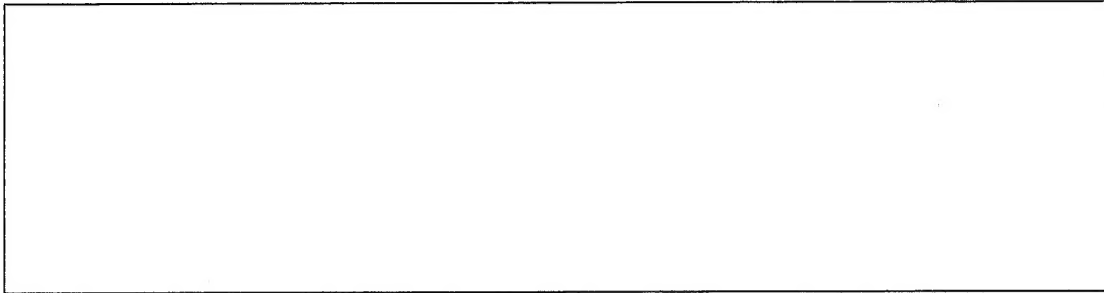(a) What is the function in Processing?   [1 mark]

Continued...

(b) Why is the function used in Processing?   [2 marks]
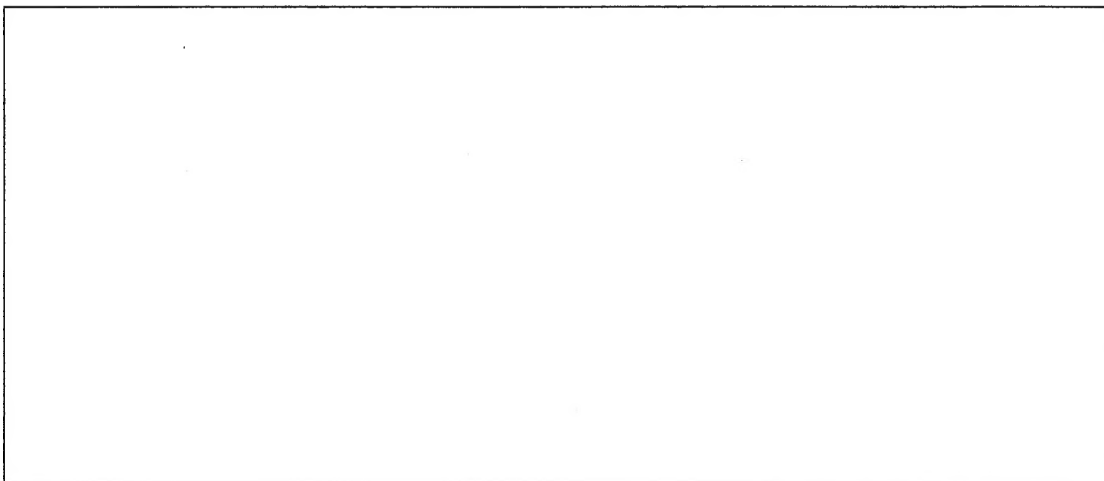
(c) Predict the output of this program by writing out what would appear in the *message window*.   [3 marks]

```
void draw() {
 println("c");
 function2();
 noLoop();
}

void function1() {
 println("2");
}

void function2() {
 println("f");
 function1();
 println("h");
}
```
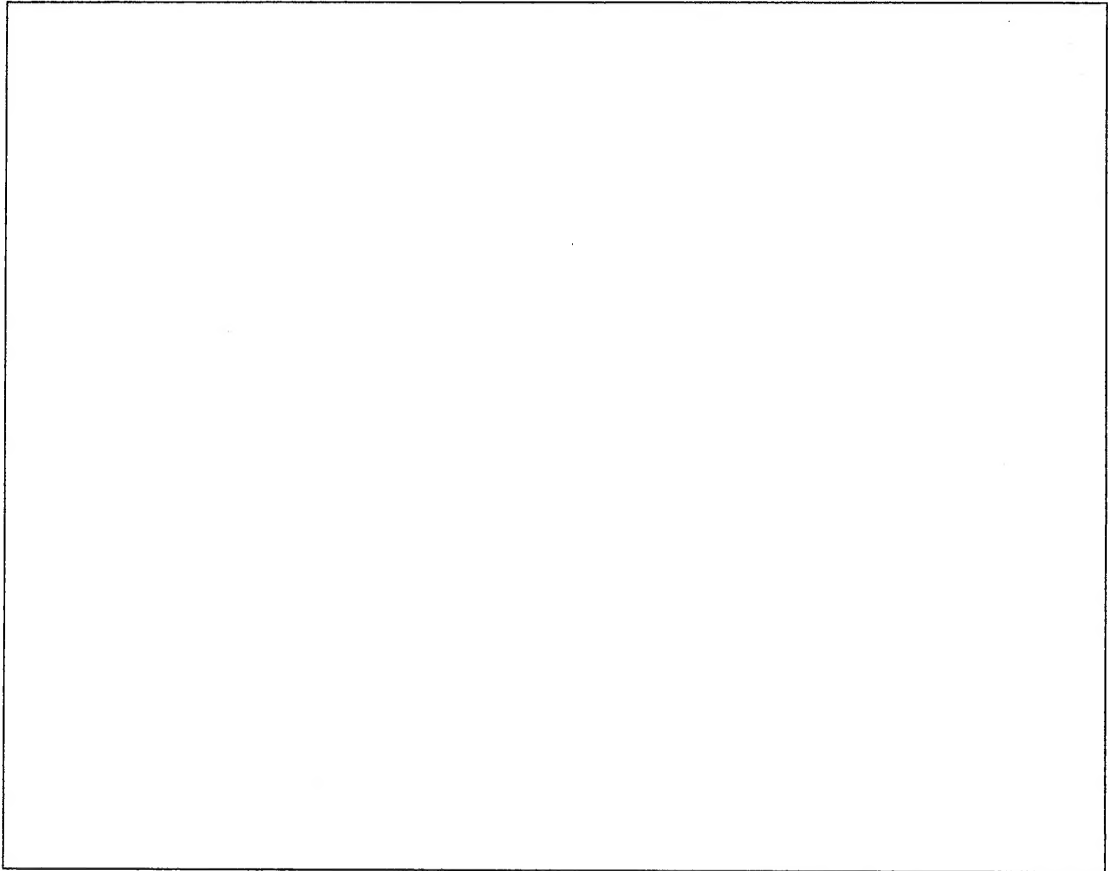
Continued...

(d) Write the codes that will load an image name mypic.jpg into an output screen size of 640x480. Start the display of the image at location point (20,20). Your code should consist setup() and draw().

[4 marks]

End of Page.